

Status of green power marketing and opportunities for biomass

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Green power marketing has the potential to expand markets for biomass and other renewable energy technologies by allowing customers who place a value on a clean energy to purchase their power from renewable sources. Currently, more than one-third of U.S. electricity customers can choose a green power product either through their regulated utility or through a competitive green power provider. In regulated electricity markets, more than 80 utilities offer green pricing programs through which customers can purchase renewable energy or contribute to a fund to support the development of new renewable resources. In addition, competitive marketers are offering wholesale or retail green power products in seven states that have restructured their electricity markets—California, Connecticut, Illinois, Maine, New Jersey, New York, and Pennsylvania. Early indications from both competitive and regulated markets are that customer choice has the potential to play an important role in supporting renewable resources. Biomass power has played a limited role in green power marketing to date, but opportunities exist for increasing its presence.

Currently, about 10 utilities offer green pricing programs through which a portion of the power is supplied by biomass resources. For the most part, these utility programs have supported the development of landfill methane projects; however, one utility in Wisconsin has blended wood-fired generation with other renewables and a Florida utility recently offers a program that blends co-firing of recovered organic matter and coal with photovoltaics. In states that have opened to competition, particularly the Mid-Atlantic and northeastern states, green power marketers have also incorporated biomass power, primarily landfill methane, in their product offerings. In contrast to utilities, competitive green power marketers have relied primarily on power from existing biomass facilities. One notable exception is a California green marketer that announced a 100% renewable product that would have relied, in part, on power generated from down wood waste collected in the Lake Tahoe Basin. Unfortunately, the product never made it to market because the company was forced to pull out of California in late 2000 as a result of volatile wholesale power prices.[1]

Nationally, green power marketing has spurred the development of more than 160 MW of new renewables (see Table 1). And marketers and utilities have formally announced or are in the process of constructing nearly another 290 MW. [2] These estimates include new renewable projects or portions of projects built specifically to serve green power customers served by either regulated utilities or competitive marketers. Biomass represents a relatively small fraction of the installed (about 9%) and planned (15%) capacity additions. The dominant portion of the biomass capacity—both installed and planned—is landfill methane.

Table 1. New renewables capacity supported
by green power marketing (in kW)

Source	Added	%	Planned	%
Wind	138,515	84.9%	239,360	83.2%
Solar	3,813	2.3%	4,125	1.4%
Biomass	15,290	9.4%	43,300	15.1%
Small Hydro	500	0.3%	750	0.3%
Geothermal	5000	3.1%	0	0.0%
Total	163,118	100.0%	287,535	100.0%

What factors have limited the role of biomass in green power product offerings? Perhaps the largest barrier has been consumer perceptions, or misperceptions, of biomass resources. Consumer surveys have suggested that consumers are somewhat divided and perhaps confused about the environmental benefits of biomass resources.¹ However, the same surveys suggest that consumers may be interested in supporting biomass as a green power option, with the majority of customers (53%) indicating that they may be willing to pay at least \$4 more per month for biomass power [3]. Despite the mixed response from customer surveys, there are opportunities for biomass power to play a role in meeting consumer demand for green power. Utilities and marketers have offered green power blends that include biomass power and consumers have responded favorably to these products. Typically, biomass resources can reduce air pollutants, such as SO₂ and NO_x and achieve net reductions in greenhouse gas emissions. Biomass resources are also among the most cost-effective renewable energy options, and by blending biomass with other fuel sources, green power marketers can reduce the price premiums that they charge their customers. In some regions of the country, biomass may be the only low-cost renewable energy option available. Furthermore, biomass is dispatchable and, thus, can complement intermittent renewable energy sources, such as wind. Biomass co-firing also offers the advantage of being the only renewable resource that can replace existing coal-fired generation. Clearly, biomass power does offer recognizable environmental and financial benefits that are important for premium-based green power products. However, the biomass community may need to educate the public, the environmental community, and other stakeholders about its environmental benefits and impacts in order to achieve full penetration in the market.

List of References

- [1] Swezey, B. and L. Bird, *Green Power Marketing in the United States: A Status Report*, NREL/TP-620-28738. Golden: CO: National Renewable Energy Laboratory, August 2000.
- [2] Bird, L. and B. Swezey, *Estimates of Renewable Energy Developed to Serve Green Power Markets*, National Renewable Energy Laboratory, December 2000.
- [3] Farhar, B.C. *Willingness to Pay for Electricity from Renewable Resources: A Review of Utility Market Research*. NREL/TP-550-26148. Golden: CO: National Renewable Energy Laboratory, July 1999.

¹ In a recent review of utility market research prepared by the National Renewable Energy Lab, 64% and 59% of consumers indicated that they somewhat or strongly favor using landfill gas and forest waste resources, respectively, while 18% and 29% were strongly opposed [3]. The remainder (18% and 12%) indicated that they didn't know if they were in favor of or opposed to using biomass resources to generate electricity, suggesting that there may be a lack of understanding about biomass among a portion of the public.